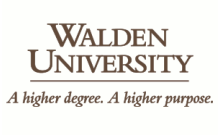

2020

Childhood Obesity

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This is to certify that the doctoral study by

Yvette Ledjo

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2020

Abstract

Childhood Obesity

by

Yvette Ledjo

MS, Walden University, 2015

BS, Coppin State University, 2012

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2020

Abstract

Obesity in adolescents is a worldwide epidemic. According to the Centers for Disease Control and Prevention, approximately 17% of adolescents in the United States are obese. These statistics put pressure on public health nationally and internationally. Obesity leads to chronic diseases such as cardiovascular disease, diabetes, and arthritis. This doctor of nursing practice project was carried out in a juvenile correctional facility's clinic, where detainees visited for treatment of acute and chronic health-related issues. Clinicians address detainees' problems, but a gap was identified in the knowledge of these clinicians. This project focused on closing that knowledge gap by providing a 1-hour educational module to nursing staff to determine if participants' knowledge of assessment, diagnosis, treatment, and management of obesity in adolescents would be improved. For this project, 20 staff participants answered pretest questionnaires before attending the in-service training. One participant failed to complete the posttest; 19 participants scored $M = 100\%$ correct on posttest questions. Analysis found the p value on the paired samples t-test for pretest and posttest was $p = 0.00$, implying that the pretest followed by a 1-hour education module and posttest significantly improved the staff's knowledge of how to treat obesity among adolescent youth. This DNP project offers strategies to educate staff to expand their knowledge to facilitate better assessment, diagnosis, treatment, and prevention of obesity among youth. The information from the project may enable providers to educate obese adolescent detainees to help them manage their weight to ameliorate the problem of obesity offering an important contribution to positive social change.

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Dedication

I dedicate this project to my parents who brought me in this world, but they never had the opportunity to see who I became. May your souls rest in peace. To Mrs. Sabine Leudjeuh, who adopted me early in my childhood and showed me how important it was to be educated. I remember that you used to reward children who scored 20 out of 20 in a course; this was a good motivator for us. Unfortunately, you did not live long enough to see what you did. May your soul rest in peace. To Mrs. Germaine Zambo Fobissie, who has been there from my childhood until today. My education ended in the fifth grade due to a lack of tuition; you used to pay my tuition with your school loan. You told me that education was very important. I did not deceive you and took my education to a high level; there are no words to say thank you. To Dr. Nimely with all her clinical advice and support. You taught me a lot in the medical field—thank you so much. To Mrs. Chantal Nana Tafon: you were always there when I was down, and your support helped me get through this challenge. Thank you for all your support. To Mrs. Christine Ground for all the help that you spontaneously and always provided to me. Thank you again. To my daughter, Ange Merveille Noubissie Ngouambe. You triggered my motivation to go back to school and get this DNP done. To my husband, Joseph Ngouambe. You are always present when I need you; you gave me all the support that I needed for this program. You never went to bed when I was still finishing my homework or my paper; today I can say we made it.

Acknowledgments

I would like to thank my chairperson, Dr. Mark Anthony Wells, for all the corrections and the support he provided me for this long journey. Thanks also to chair member Dr. Amy Wilson for all her feedback to help me overcome the challenges I went through. Thanks to Dr. Wright for the corrections made during this long journey. Finally, thanks to my school Walden University, which gave me the opportunity to study hard and earn my master's degree in the past and, today, my DNP.

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Section 1: Nature of the Project

Introduction

According to the World Health Organization (2019), childhood obesity continues to increase around the world, and more than 124 million children and adolescents are obese. Obese children and adolescents are at risk of adverse health outcomes as well as psychological distress that can have social implications. Doctors, nurse practitioners, physician assistants, and nurses can address this problem, because they are in frontline positions to identify people at risk for obesity. They assess them, screen them for complications, educate them, and develop treatment plans. Success in treating childhood and adolescent obesity requires a collaborative approach.

The focus of this project was to provide obesity education to staff working in a local juvenile correctional facility. The goals were to increase their knowledge of obesity and educate them on how to assess obesity in detained teens, how to diagnose and treat obesity in those teens, how to manage their patients' weight, how to prevent obesity in teenagers, and finally how to encourage communication among the multidisciplinary team (healthcare providers, nurses, nurse's assistants, dieticians, pharmacists, and behavioral health specialists). To promote a new approach to addressing this problem in the juvenile correctional facility, an educational in-service program was held on-site to provide content on assessment, diagnosis, treatment, and prevention of obesity in juvenile detainees. Healthcare providers must educate detainees on making good food choices when placing their commissary orders, encouraging detainees to read food labels when ordering and to pick foods low in calories. To provide this knowledge, healthcare

providers need appropriate education. According to Bhargava (2012), people knowledgeable about food choices tend to lose weight, and people who read food labels are more likely than their counterparts who do not read labels to adopt low-fat diets, as they tend to choose more fruits and vegetables that help them control their weight.

Problem Statement

According to the Centers for Disease Control (CDC, 2018), obesity in children is a serious problem. In the United States, 13.7 million children and adolescents are obese; this statistic puts pressure on public health officials nationally and internationally. Johnson, Chaput, Diasparra, Richard, and Dubois (2018) observed that detainees gain weight while incarcerated because of the quality of food served in prison; prisoners eat less healthy food such as fruits, vegetables, cereals, and legumes. The quality of food consumed in penitentiaries is considered a modifiable risk factor for gaining weight during incarceration (Johnson et al., 2018). The commissary or canteen is the target for weight management in correctional institutions.

Hurt et al. (2014) showed that the prevalence of overweight among non-Hispanic white children and teens in this East coast state of the United states was 21.0%, which is higher than the 14.0% national rate. The obesity rate among Hispanics in this state was 28.1%, versus 21.2% nationally, and the obesity rate among African American children was 20.8%, versus 24.3% nationally. These statistics constitute a warning bell for healthcare providers practicing in this state. Most detainees have low health literacy, which make them a vulnerable population, and their health outcomes are poor compared to those of other people (Gate & Bradford, 2015). In this state Department of Corrections

(DOC), clinicians see detainees who are comorbid with at least one chronic disease every three months to manage their chronic illness. This routine visit minimizes missed appointments. In the DOC, there is good follow-up on patients because they are followed within the same care practice.

Obesity has adverse effects and causes diseases that can reduce life expectancy. Obese teenagers tend to have psychological issues that lead to an inferiority complex about personal appearance and low self-esteem compared to others (Nechita, 2014). These issues can lead to rejection by their peers and to irritation, anxiety, and social isolation. Obese children have a negative view of themselves; the implication of this is depression, and teenagers who are depressed are more likely than other teenagers to fall into the trap of illegal drugs use (Nechita, 2014).

According to Yang, Goldhaber-Filbert, and Wein (2013), the cost of obesity in the United States is alarming; the cost of prescription drugs in emergency rooms and outpatient clinics in 2012 was about 14.1 billion dollars. The inpatient cost was about 237.6 million dollars. Given the above statistics, healthcare professionals should take action and help these people by providing preventive care.

The correctional facility where this project was carried out houses over 2,000 adolescent male detainees. Most are from lower socioeconomic levels, and over 40% are overweight or obese, a rate well eclipsing the state average and the national average. The detainees are aged 12 to 19 years, and the average stay in the correctional facility is about 1 to 4 years. The healthcare facility that serves these adolescents is run by 22 licensed

staff and other support staff, who are in a unique position to influence and educate these adolescents.

Purpose Statement

According to Gate and Bradford (2015), juvenile detainees are described by the following statistics: 13.8% have hypertension, 6.1% have heart problems, 4% have diabetes, 44.6% abuse alcohol, 44.3% are drug dependent, and most are obese or overweight. In addition, many people who are currently incarcerated were incarcerated previously with minimal access to healthcare, and they practice unhealthy behaviors (Gate & Bradford, 2015). A visit to the correctional health clinic provides a teachable moment. In the past, the clinic staff addressed only a single issue: the acute episode that brought the detainee to the clinic. Usually, the detainees visit the clinic for a fever, a cold, or a problem with a chronic illness such as type 1 diabetes, hypertension, or asthma. The clinic staff were managing the immediate problem and were not focusing on preventive healthcare this represented the primary gap in the practice of staff at the correctional health clinic. In addition, the staff had no tools available to help them focus on the problem of obesity.

Thus, the practice-focused question guiding this DNP project was the following: Does the completion of an evidence-based weight loss education program by staff members working in a primary care clinic in a local juvenile correctional facility increase staff members' knowledge of preventive care? The goal of this project was to promote weight loss in juvenile detainees by providing education and tools to clinic healthcare

providers, nursing staff members, and nursing assistants so that the message on weight loss could be transmitted during each visit, especially among obese patients.

The Nature of the Doctoral Project

The project setting was a local juvenile correctional facility with many obese teenagers. According to Smoyer and Minke (2015), detainees gain weight while they are incarcerated because the food served in prison is not healthy. In some prisons, detainees raise animals and operate a dairy farm where they grow corn, vegetables, wheat, and soybeans (Leone, 2007). For this project, I developed an educational program accompanied by a toolkit that was constructed to assist staff members in providing preventive care to adolescent detainees.

The toolkit includes information for staff on how detainees can prepare healthy meals when they have access to the above-mentioned fresh foods. It also provides information on the benefits of exercise. Staff members can use the elements of the toolkit to guide discussion with teenagers. For example, the toolkit includes an assessment guide and a tip sheet for developing a verbal agreement based on goals. This can provide an opportunity for teenagers to take the lead and establish their own goals for self-monitoring (Stewart & Gahagan, 2012). As weight loss is often tied to various psychosocial and mental health-related issues, Nursing staff members must be vigilant to identify these needs in adolescents and refer detainees appropriately. The toolkit has several components: an assessment tool (Appendix A), a brochure on healthy food (Appendix B), a brochure defining an exercise program (Appendix C), a one-page goal-

setting tip (Appendix D), and a tip sheet for staff on when to refer detainees to mental healthcare(Appendix E).

According to Vafamand, Kargarfard, and Marandi (2012), exercise increases the levels of serotonin and dopamine in the brain. Therefore, it can also be helpful for weight control. The purpose of educating healthcare providers and nursing staff was to allow them to reinforce the educational model of exercise and food choice at each level of the healthcare system In addition, some people who are incarcerated have a history of incarceration with little access to healthcare, and they may practice unhealthy behaviors. Most detainees have low health literacy; while incarcerated they become vulnerable, and their health is poor compared to that of other people (Gate & Bradford, 2015).

An education plan was developed for correctional healthcare providers to teach detainees at each visit, regardless of the reason that brought them to the clinic. In this way, detainees with chronic disease had more chance to lose weight than their counterparts who were seen only for sick call (Gate & Bradford, 2015). To evaluate existing levels of expertise about overweight and obese care management, a pretest was developed and used. The curriculum for the education is presented in Section 3 along with the toolkit. Finally, to evaluate the impact of the program, a posttest was used to measure knowledge acquisition, and a post-test was given to participants 30 days later to evaluate the knowledge retained. A qualitative approach was used to identify environmental barriers to success and to brainstorm solutions.

Significance

Obesity is strongly correlated with diseases such as cardiovascular disease, type II diabetes, hyperlipidemia, sleep apnea, stroke, arthritis, and cancer. These chronic diseases can lead to complications later in life; obese adolescents tend to die from chronic disease before age 55 (Yan, Liu, Zhu, Huang, & Wang, 2014). In addition, overweight and obese adolescents are more likely to be bullied in schools and in their communities, including in correctional facilities. Obesity in adolescents interferes with their development of interpersonal relationships and social skills (Yan et al., 2014). The above problems can be addressed if the education module is used at each level of patient care by the healthcare professional. Healthcare providers and nursing staff working in the correctional facility must reinforce the teaching during sick call visits, especially for teens with a body mass index (BMI) higher than 25. In addition, providers should explain to teenage detainees that obesity can be resolved if an obese teen engages in healthy habits.

According to Caballero (2004), the most important factor in helping overweight people return to a normal weight is the establishment of programs that prevent people from gaining weight. The components of the follow-up visit include physical activities for at least 1 hour a day most days of the week, diet modification, and restrictions on television viewing (American Academy of Family Physicians, 2013). An obese teen who follows the above recommendations is more likely to grow up with an average weight and to become a healthy adult with a normal weight. The expected outcome is that teenagers will lose weight and reduce their risk of developing comorbidities. Chronic illness is a burden for the government. In 2009, the healthcare expenditures in the United

States were 2.5 trillion dollars (US Department of Health and Human Services Centers for Medicare and Medicaid Services, 2019).

In summary, this DNP project provided staff members at a correctional health clinic an educational program and a toolkit that included an assessment tool, brochures for detainees on healthy food choices and exercises, and a tip sheet on when to refer a detainee to mental health services. As a result of this education, staff provided overweight and obese care management to detainees at every clinic visit regardless of the reason for the visit. The problem of overweight and obese adolescents in correctional facilities is a complex one, and the DNP project provided strategies to ameliorate the problem, offering an important contribution to positive social change.

Summary

Obesity in adolescents is the root of many chronic diseases such as cardiovascular disease, diabetes, sleep apnea, arthritis, acanthosis nigricans, gastroesophageal reflux disease, and some type of cancers (endometriosis, breast, and colon). Obese children are more likely to become obese adults. Healthcare providers are at the frontline in the assessment, diagnosis, and treatment of diseases in hospital settings, long-term care facilities, communities, schools, and correctional institutions.

Section 2: Background and Context

Introduction

Obesity can decrease life expectancy. Obesity in teens can lead to mental health issues such as irritation, anxiety, and social isolation. Teens who face such un a greater risk of falling into the trap of illegal drug use compared to their counterparts without weight problems (Nechita, 2014). The practice-focused question guiding this DNP project was this: Does providing an evidence-based weight loss education program for staff members working in a primary care clinic in a local juvenile correctional facility increase staff members' knowledge of preventive care? The goal was to promote influence weight loss in juvenile detainees by providing education and tools to providers, nursing staff, and nursing assistants so that the message on weight loss can be transmitted during each clinic visit, especially among obese patients. This doctorate project was designed to close a practice gap with a toolkit for detainees and in-service training for staff.

Concepts, Models, and Theories

Overweight and Obesity in Correctional Facilities

Robinson et al. (2006) showed that detainees experience undesirable and rapid weight gain when they are confined in prison; however, a small effort to reduce weight and exercise daily could lead to a large change in incarcerated adolescents' lives. Adolescent obesity has become an urgent issue to be addressed in the United States; the typical obese adolescents has at least two or more diseases and are at risk for weight gain during incarceration (Robinson et al., 2006). Robinson et al. found that, on admission,

only 12% of adolescent detainees were obese and 26% were overweight. After 3 months of incarceration, however, 66% of detainees were found to be overweight or obese. adolescents start gaining weight 3 months after being admitted to long-term juvenile prisons (Robinson et al., 2006). Among adolescents with abnormal weight, 23% were found to be taking psychotropic medications, and for this category, their weight increased by from 59% to 78%. Factors that lead to weight gain in penal institutions are psychotropic medications, food choices, and the lack of exercise (Robison et al., 2006).

Strategies to Reduce Overweight and Obesity

Johnson et al. (2018) showed that detainees rapidly gain an undesirable amount of body weight during incarceration. This increases their risk of becoming obese, which is associated with comorbidities. To lose the extra pounds, detainees should exercise frequently; as little as 1 to 2 hours of movement a day can result in weight loss (Jonson et al., 2018). Those who engage in at least 1 hour of daily activities gain about 4.5 kg, whereas others who are inactive gain 8.3 kg. Those who engage in rigorous exercises, cardiovascular exercises, weightlifting, and team sports gain 2.3 kg in 1 year (Johnson et al., 2018). The nightly amount of sleep is also associated with weight gain. People who sleep less than 7 hours per night gain more weight than their peers who sleep between 7 and 9 hours a day (Mc Neil et al., 2013; Patel & Hu, 2018). People who oversleep (more than 9 hours per night) are at higher risk of obesity (Chaput, McNeil, Despre, Bouchard, & Tremblay, 2013). Many studies have shown that the correctional environment is more obesogenic than the community setting (Baldwin, Clarke, & Roberts, 2016; Gates & Braford, 2015). Of detainees admitted to correctional institutions, 26.6% are obese. This

rate increases to 45.5% during incarceration (Johnson et al., 2018). Food served in such institutions is a variable risk factor for weight management in the correction institution.

Roy's Adaptation Model

Roy's adaptation model is the theoretical framework used for this project. In 1976, Sister Callista Roy developed adaptation theory. Roy's model describes how people respond positively to environmental changes. According to Roy (1970), the adaptation model has four components: person, health, environment, and nursing. The first component of the model focuses on a person; the adaptation model includes individuals, families, communities, and organizations. Human beings use both innate and acquired tools to adapt to environmental change. According to Roy and Andrew (1999), the perception of adaptation assumes that a person is an open system that interacts with both internal and external stimuli to adapt to a new situation. For an obese teenager to lose weight, they must adjust their lifestyle and exercise patterns, and they must change their diet by making good food choices. The second component of the adaptation model is the health status: health is measured along a health–illness continuum and is a state of being integrated**.** The third component is the environment: the society always interacts with an individual to determine how the individual adapt to stimuli the environment is the set of internal and external conditions that influence and affect a person. The person must adjust to respond positively to environmental changes. The fourth component of the Roy adaptation model is nursing. This part of the model promotes adaptation of individuals and regroups all adaptive models, thereby contributing to health, to quality of life, and to dying with dignity.

Adult Learning Principles

Dalto (2015) explained that adult learners prefer to take control or at least to have some influence on the teaching and learning process. Adults desiring to learn new material do not want to be taught; they prefer to seek training in the areas that are appropriate for them, and they find added motivation to learn and feel a greater sense of accomplishment when they are involved in identifying training needs. They want to participate in the teaching, and they perceive training as something that will improve their quality as an individual. Many tools techniques are available for teaching adult learners: written materials, webinars, PowerPoint presentations, super users, and one-on-one instruction. Among these, adults prefer written instructions and webinars (Delmore & Kent, 2016).

Relevance to Nursing Practice

Adolescent obesity has become an urgent issue in the United States. Statistics show that 70% of overweight children and adolescents have one or more additional cardiovascular disease risk factors, and 30% have at least two diseases (CDC, 2018). Healthcare providers can address this issue. This project provided an evidence-based model to educate staff working in juvenile facilities and reinforce their knowledge about obesity, diet modification, and exercise so that this knowledge could be disseminated to obese young detainees during clinic visits. According to the Health Resources and Services Administrations (HRSA, 2017), since 1980 the rates of obesity have doubled in children aged 6 to 11 and have quadrupled in adolescents from 12 to 19 years of age. During that time, multiple approaches have been tried to address childhood obesity. A

program developed by the HRSA focused on improving eating behaviors and physical activities in the low-income population, despite the environmental barriers that affect underserved communities. The HRSA promotes easier access to affordable healthy food. It also empowers families to adopt healthy eating practices (HRSA, 2017). Another program that addresses obesity in children and adolescents is the "Let's Move" campaign. This program was launched by former first lady Michelle Obama's White House Task Force on Childhood Obesity in 2010. The program includes the food industry, communities, schools, and families. It aims to demonstrate healthy food habits to children and empowers parents and caregivers to participate in healthy food choices. The program promotes healthy foods in schools by decreasing the number of vending machines and eliminating high-calorie foods from these machines. The program also increases access to healthy and affordable meals, increase physical activities, increases the number of recreational parks in communities, and expands sidewalks (Let's Move, n.d.). The cost of obesity is very high in the United States because people seek help in emergency departments for acute care for hypertension and diabetes, which are diseases caused by obesity

Local Background and Context

In 2010, the prevalence of obesity in one state in the East cost of the United State, ng non-Hispanic white children and teens was 21.0%, which was higher than the 14.0% national rate. The obesity rate among Hispanics was 28.1%, versus the national rate of 21.2%, while the obesity rate among African American children was 20.8%, versus a national rate of 24.3% (Hurt et al., 2014). Healthcare providers and nursing staff should

educate children and teens in the community, in schools, in hospital settings, and in the correctional settings. For this Doctor of Nursing practice education to be effective, it must involve all levels of care: healthcare providers, nurses, and nursing assistants. According to Sheehan and Yin (2006), nurses cover a wide range of healthcare settings, and they represent a force in health politics; thus, they can teach health promotion to prevent obesity. This DNP project provided an education module to the nursing staff at a juvenile correctional facility, giving them tools to adequately educate juvenile detainees on obesity prevention.

Definition of Terms

Commissary or canteen: This is a storage system that offers items for purchase such as hygiene items, food, snacks, sodas, vitamins, and other personal items. Detainees have a specific day to place their order in the commissary, and the money is taken from their account. Detainees receive money from family members or friends. They also earn money from wages.

DOC: Department of Corrections

BMI: Body mass index

Overweight child: Any child with a BMI greater than 85th percentile among children or teens of the same age and sex

Overweight teenager or adult: Any teenager or adult with a BMI greater than 25 for people of the same age and sex

Obese child: Any child with a BMI greater than the 95th percentile

Obese teenager or adult: Any teenager or adult with a BMI greater than 30 for people of the same age and sex

Severe obesity: This is used to describe any adult with a BMI equal to or greater than 40 for people of the same age and sex.

CDC: Centers for Disease Control and Prevention

The CDC recommends using BMI as a tool to measure body fat in children. These BMI measurements fall into one of three groups: below the 85th percentile is considered normal weight or underweight, between 85th and 94th percentile is considered overweight, and above the 95th percentile is classified as obese. These percentiles are all in comparison to children of the same sex and the same age. For adults, the BMI is also obtained by dividing a person's weight in kilograms by their height in square meters (CDC, 2018).

Role of the DNP Student

The first step in this project was to meet with the medical director of the juvenile correctional facility to discuss the root of obesity in adolescents within the organization. The second step was to conduct a literature review and decide which matrix should be used to identify the best practices for providing the education module among healthcare professionals. The education module was to focus on how to assess, diagnose, treat, and prevent obesity in teens. The module was also to address health promotion, lifestyle modifications, and exercise programs for detainees with a BMI of 25 or greater. According to Battaglia et al. (2015), physical exercise decreases the risk of depression and has positive effects on mood. Thus, it can also be used to control weight. The third

step was to meet the nurse manager, the director of nursing, and the assistant director of nursing to discuss obesity and the teaching that was planned for their facility. I also discussed the education plan with the general manager to determine whether the project aligned with the mission and vision of the facility. Once she agreed that the teaching program fit with the institution's goals, vision, and mission, I created the educational material for the providers and nursing staff. The materials were created based on guidelines from the American Heart Association (AHA) and CDC. Once the educational material was completed and approved, the date and time of presentation was set, and providers, managers, and nursing staff were notified. The PowerPoint presentation, the test questionnaires, and other appendixes were reviewed and approved by the regional educator for obesity and diabetes.

According to Stewart and Gahagan (2012), health behavioral change is the main tool to manage obesity in adolescents. The healthcare provider can facilitate the change by helping teenagers to understand that any small step counts and should not be neglected in long-term obesity treatment. The healthcare professional should use behavioral change techniques by setting a specific, measurable, achievable, recorded, and timed—or SMART—goal. The weight loss program requires compliance and discipline. If adolescents want to lose weight, they must be aware of the extra pounds they carry. To lose the weight, adolescents must be able to sustain the effort. Hiatt (2006) created a model that guides an individual when change is about to happen. The acronym *ADKAR* represents the five tangible factors involved in achieving change. First, the individual must be *aware* of the change. In this case, the adolescent must be aware that they are or

overweight and must be willing to change. The adolescent must also have a *desire* to withstand and participate in the change and must have *knowledge* of how the change will be achieved. For this project, change was achieved using brochures made by the DNP student. The adolescent must have the *ability* to implement change via healthy food choices and exercises. Finally, the adolescent must have *reinforcement* to sustain the change and maintain motivation.

For this project, the DNP student invited 22 healthcare professionals to attend the in-service training. The participants included four medical doctors, six midlevel providers, one physician assistant (PA), five nurse practitioners (NPs), 10 nurses (registered nurse and licensed practical nurses), and two nurse assistants. Before taking the pretest at the start of the in-service program, the participants signed informed consent forms. After the pretest, the trainer collected the questionnaires, and the participants attended 60 minutes of training before completing the posttest. The pretest and posttest were analyzed to assess the knowledge the trainees gained from the in-service program.

Section 3: Collection and Analysis of Evidence

Introduction

According to Feinstein, Gomez, Gordon, Cruise, and DePrato (2007), the number of adolescents in the United States who are obese or overweight continues to rise, and this may be due, in part, to financial burden, especially with low-income families who may not be able afford healthy food choices. Weight management can be challenging in the general population and is even more challenging in penal institutions. A large percentage of adolescents who enter a long-term juvenile institution are not obese based on the national standard (Feinstein et al., 2007). Obesity can lead to chronic diseases such as type II diabetes and cardiovascular diseases (Feinstein et al., 2007). Many delinquent adolescents do not seek healthcare services in the community, and their rate of recidivism is high. About 40% of adolescents who appear in juvenile court are repeat detainees (Feinstein et al., 2007). Many return to correctional facilities and finally become adult detainees (Feinstein et al., 2007). In the United States, about 130,000 adolescents are incarcerated in juvenile facilities such as county jails, state prisons, and federal prisons. The same rules apply to all detainees incarcerated in federal prisons. When detainees are in county jails or state prisons, the rules depend on the county or state where they are confined (Johnson et al., 2018). Glaze and Park (2012) estimated that 2.3 million detainees (juveniles and adults) were held in custody in local jails and state and federal prisons in 2011. About 4.6 million detainees were on probation or parole. The prevalence of chronic disease in correctional institutions is elevated compared to the rate in the general population (Glaze & Park, 2012). This may be because detainees do not seek help

in communities, and when they are convicted, correctional facility healthcare services manage their acute and chronic diseases (Madison & Braford, 2015).

Practice-Focused Question

The correctional facility that was the focus of the DNP project houses over 2,000 adolescent male detainees. Of these, most are from lower socioeconomic levels, and more than 40% are overweight or obese, well eclipsing the state rate average and the national average. The detainees are from 13 to 19 years of age, and their average stay in the correctional facility is about 1 to 5 years. The clinic that serves this population has about 22 licensed support staff who can influence and educate these teens through one-on-one dialogue and by providing them a brochure and helpful hints on how to make good food choices in the commissary. Detainees visit the clinic to seek help for acute and chronic problems, which the clinic staff manage without focusing on prevention. This represents a gap in staff practice at the correctional health clinic. Therefore, the practice question for this DNP project was the following: Does presenting an evidence-based weight loss education program to staff members working in a primary care clinic in a local juvenile correctional facility increase staff members' knowledge? The long-term aim of this project was staffs education on weight loss so that they can disseminate to young detained during the visit at the clinic.

Sources of Evidence

To accomplish the goals of this project, literature from the following search engines was collected: Medline with full text, Ovid Nursing Journals with full text, PubMed with full text, Cochrane database of systemic reviews, CINAHL plus and full

text, the, ProQuest Nursing and Allied Health Services. A search on the keyword *obesity* returned 927,582 articles. When using the search phrase "*children or kids or youth or child*," the results included 943 articles. The search phrase "*adolescents or teenagers*" returned 54 articles this searches provided evidence to address the obesity issue that is becoming a burden in the United States.

Participants

This DNP project is focused on clinic staffs' knowledge of adolescent obesity. The project included healthcare professionals who serve at a correctional facility on the east coast of the United States. Project participants took a 10-minute pretest and then completed an educational in-service program. They were then given a posttest. For this project, 22 staff members were invited to participate. These included four providers (medical doctors), six midlevel providers (one physician assistant and five nurse practitioners), 10 nurses (registered nurse and licensed practical nurses), and two nurse's assistants. It was important to evaluate participants' knowledge of adolescent obesity to determine the effectiveness of the educational program. The goal was to increase staff members' knowledge so that they could be a knowledgeable resource for detainees during clinic visits.

Procedures

The staff educational program consisted of a brief lecture using a PowerPoint presentation (see Appendix A) that focused on the diagnosis, treatment, and prevention of obesity and that evidence-based strategies that can be useful to improving health outcomes in the focus population. The education module was developed using several

guidelines, including those from the CDC (2017), the American Heart Association, and the American Association of Family Physicians (American Association of Family Physicians [AAFP], 2013). The pretest (Appendix B), the immediate posttest and the 30 days posttest (Appendix C) were developed by this DNP student based on CDC guidelines. The DNP student developed the components of the toolkit (see Appendix D). An assessment tool to identify the problem (Appendix E) was developed based on the CDC guidelines. The toolkit included the goal-setting tip sheet for staff to use with overweight or obese detainees (Appendix F), a tip sheet based on CDC guidelines for staff to use in referring detainees to mental health services (appendix G), and a tip sheet containing food choices and physical activities (Appendix H). This last tip sheet was developed using CDC guidelines (2018), the AHA diet (2013), and National Heart, Lung and Blood Institute guidelines (2018).

The institution's healthcare facility is open 24 hours a day, 7 days a week. For this project, six sessions of in-service training were scheduled, each with about four or five participants. The training included interaction between the DNP student and the participants to get people involved and increase their knowledge.

Protections

I requested authorization from Walden University Institutional Review Board (IRB 11-26-405282) before developing the educational toolkit. Project participants were staff members working in the correctional institution who were at least 18 years of age. The volunteer participants signed an informed consent form before answering the pretest

questions. The project did not include a vulnerable population such as children, detainees, or a specific population in terms of race, religion, or ethnicity.

The project guaranteed the ethical protection of all participants by attributing a random code to each quiz. The coding system and the cross-references of real numbers to code names were kept in different places in password-protected files that were stored only on my private computer. The data collected for analysis were kept in separate files using code names only. All data was also stored on a USB drive for backup. The laptop used for this project was locked in an office, and no staff members had access to the laptop. I controlled all data, and all data will be destroyed 3 years after this project has been approved by Walden University.

Analysis and Synthesis

For this project, the DNP student gave the pretest to the staff participants. The staff took a few minutes to answer the questions and returned the pretest to me. A 60-minute educational in-service program was then presented. Participants then completed the immediate posttest. Both the pretest and the immediate posttest questionnaires were used to evaluate the knowledge gained. Thirty days after the in-service program, the participants again took the immediate posttest to evaluate their knowledge 30 days post-education.

Data from this project was analyzed using Microsoft Excel software and the IBM SPSS statistics package. As this project included an educational component, the paired *t*-test was the best tool for the analysis pre versus post education (McLeod, 2019). To

measure the central tendency of the data, I chose descriptive statistics, frequency statistics, and means.

Summary

Adolescent obesity has become an urgent issue in the United States. Obesity can lead to psychosocial problems, hypertension, diabetes, and dyslipidemia. Moreover, some statistics show that 70% of overweight children have more than one additional cardiovascular disease risk factor, and 30% have at least two diseases (CDC, 2018). The objective of this project was to present an evidence-based education model to staff working in a juvenile facility to reinforce their knowledge of obesity, diet modification, and exercise, so that staff could be a knowledgeable resource for detainees during clinic visits.

Section 4: Findings and Recommendations

Introduction

Statistics from the CDC (2018) reported that approximately 13.7 million children and adolescents in the United States are obese. This represents 17% of that population. The prevalence of obesity increased rapidly from 1960 to 1980 and 1990. These statistics are a major cause for concern because obesity leads to psychological problems and chronic diseases such as diabetes, hyperlipidemia, and hypertension (CDC, 2018). The prevalence of obesity among adolescents' places pressure on our public health system.

According to Johnson et al. (2015), weight control can be difficult to manage in correctional institutions due to the lack of exercise and the poor quality of food. Fruits and vegetables are seldom served in correctional institutions. Instead, processed foods are served that are high in sodium, which is a risk factor for weight gain. In addition, the recreational time assigned to detainees is too brief, a result of security issues and concerns for staff safety (Johnson et al., 2015). In correctional facilities, detainees visit the clinic for acute and chronic conditions. The clinic staff manages chronic and acute conditions, but they do not provide preventive health care, which represents the primary practice gap that needs to be addressed. The practice focus question for this project was the following: Does the use of an evidence-based weight loss education program for staff members working in a primary care clinic in a local juvenile correctional facility increase staff members' knowledge of preventive care? The focus of this project was to educate these healthcare professionals regarding weight loss so that the message could ultimately encourage weight loss in obese juvenile detainees.

For this project, I collected literature from the following search engines: CINAHL plus and full text, ProQuest Nursing and Allied Health Services, PubMed with full text, and Medline with full text.

After obtaining written permission from the management of the institution where the DNP project was to be conducted, and after the approval from the IRB (11-26-405282), the above sources of evidence were consolidated in a PowerPoint presentation (Appendix A). The presentation was used for the project's educational module. The aims of this module were to educate clinic staff to assess and manage obese adolescent and to provide them tips on how to prevent obesity. Nine in-service sections were scheduled throughout the day (three morning sections, three afternoon sections, and three evening sections) to accommodate staff. Before taking the pretest, each participant signed an informed consent form. The participants took 10 minutes to answer the pretest questions (Appendix B) and then were presented the 60-minute in-service educational program. A posttest (Appendix C) was given immediately following the educational session to assess the knowledge gained by the participants; and again, the same posttest was given 30 days after the to assess the knowledge gained. The IBM SPSS statistics package and Microsoft software were used to perform the analysis to evaluate knowledge gained from the education module and the knowledge retained from the 30 days post-test questionnaire.

Findings and Implications

A total of 22 healthcare staff were invited to participate in the project. Two staff were not in attendance. The remaining 20 participants completed the pretest, and they all

attended the in-service education training. One participant had an emergency and did not complete the posttest and was considered missing data in analysis.

For this project, the educational in-service participation rate was 90% (20 participants out of 22) took the pretest. The completion rate for this project was 95% (19 participants out of 20) completed the immediate posttest questionnaire. The immediate posttest participant rate was 100% (19 participants answered the immediate posttest questionnaire). The primary analysis of this project includes the pretest scores from 20 participants, the immediate posttest results from 19 participants, and 30-day posttest results from 19 participants. The participant who did not complete the immediate posttest and the 30 days posttest was considered a missing participant. The missing rate for this education is 5%.

Table 1 shows variable frequency statistics including the mean, the median, the mode, the standard deviation, and the range for the pretest, the immediate posttest, and the 30-day posttest.

Table 1

Variable Frequency Statistics

Variable	*M*	Std. Error mean	Median	Mode	*SD*	Variance	Range	*n*	Missing number
Pre-test scores based on 20 participants	11.7	.404	12.0	12.0	1.80	3.27	6.00	20	0
Immediate Posttest scores based on 19 participants	14.0	.000	14.0	14	.000	.000	.000	19	1
30_day Posttest scores based on 19 participants	13.47	.140	14.0	14.0	.611	.374	2.00	19	1

Table 1 Analysis

The mean for the pre-test was 11.7 and the standard deviation (1.80) for the pre-test, 1participants scored 8, 2 participants scored 9, 3 participants scored 10, 1 participant scored 11, 5 participants scored 12, 5 participants scored 13, and 3 participants scored 14. The mean score for the immediate posttest was 14 and the standard deviation (.000). The statistics was done based on 19 participants; all participants scored 14 on immediate posttest. Therefore, the immediate posttest itself showed that participants gained knowledge on education. The mean score for the 30-day posttest dropped to 13.1; standard deviation was .611. During the 30-day posttest, 1 participant scored 12, 8

participants scored 13, and 10 participants scored 14. The median for the pre-test was 12, for the immediate posttest the median was 14, and for the 30-day posttest it was also 14. The mode or the most frequent number for the pre-test was 12, immediate posttest was 14, and for the 30-day posttest was also 14. The findings are available in the above table.

The next table for this education is table 2 that shows the knowledge gained after the 30 days post-test.

Table 2

Frequency Table for 30-day Posttest

	Frequency of participants 30- day posttest	Percent Of correct scores	Valid Percent of participants 30-day posttest	Cumulative Percent 30-day posttest
Valid	19	95.0	100.0	100.0
Missing	1	5.0		
Total	20	100.0		

In this project, the pre-test quizzes were given to participants and following by the educational in-service and the immediate posttest. Therefore, a paired test was used for data analysis. The pair 1compared pre-test and the immediate posttest. Pair 2 compared the immediate posttest and the 30-day posttest, and the pair 3 compared the pre-test and the 30-day posttest. The Table 3 and Table 4 show the data for pairs 1, 2, and 3.

Table 3

Paired Samples Test for Pretest, Posttest, and 30-Day Posttest

		Paired Differences			
Variables	Variables	Mean	Std. Deviation	Std. Error Mean	95% Confident Interval Different Lower
Pair 1	Pretest-immediate posttest	-1.550	4.006	.895	-3.424
Pair 2	Immediate posttest-30-day posttest	.450	.510	.114	.211
Pair 3	Pretest-30-day posttest	-1.10	3.768	.842	-2.863

Table 4

Paired Samples Test for Pretest, Posttest, and 30-Day Posttest

		Paired Differences			
Variables	Variables	95% Confident Interval Different Upper	*t*	df	Sig. (2-tailed)
Pair 1	Pretest-Immediate posttest	.324	-1.730	19	.100
Pair 2	Immediate Posttest-30-day Posttest	.688	3.943	19	.001
Pair 3	Pretest-30-day Posttest	.663	-1.305	19	.207

Pair 1 Analysis

Results of the Paired sample *t* test showed that the mean difference of the pretest compared to the immediate posttest. [Mean difference= -.1.55, SD = 4.006, 95% pre-test (-.3.424, .324)] was statistically significant at the .05 level of significance (*t* = -1.730, df = 19, p <.100). The null hypothesis which suggested that there was no significant difference on the pretest after 30 days is rejected.

Pair 2 Analysis

Results of the paired sample *t* test showed that the mean difference of the immediate posttest compared to the 30 day posttest [Mean difference= -.450, SD = .510, 95% posttest (.211, .688)] was statistically significant at the .05 level of significance (*t* = 3.943, df = 19, p <.001). The null hypothesis which suggested that there was no significant difference in the mean posttest education is rejected.

Pair 3 Analysis

Results of the Paired sample *t* test showed that the mean difference of pre-test compared to the 30 day posttest was: [Mean difference= -.1.10, SD = 3.678, 95% 30 days post-test (-2.863, .663)] was not statistically significant at the .05 level of significance (*t* = -1.305, df = 19, p > .05). The null hypothesis which suggested that there was no significant difference in the mean pretest after 30 day post-test knowledge is retained.

According to Leech, Barett, and Morgan (2015), the standard deviation is based on the deviation of each score (*x*) from the mean of all the scores; the standard deviation is a measure of the amount of deviation or dispersion of a set of values A small standard

deviation implies that the values tend to be close to the set's mean. A large standard deviation suggests the values are spread out over a wider range.

A *p* value of .05 or less is considered statistically significant. For this project, the *p* value between the pretest and immediate posttest was .000 (*p* =.000), and the *p* value between the immediate posttest and the 30-day posttest was .001 (*p* = .001). A *p* value less than .05 implies that there is a significant increase in participants' scores that is correlated with knowledge gained; this confirms that the PowerPoint presentation was effective in increasing participants' knowledge about obese adolescents

In this project, a paired *t* test was used to compare the pretest, the immediate posttest, and the 30-day posttest scores. According to Grove et al., (2013), the *t*-test is used to assess the difference in means between two groups of data, and the result indicates whether score differences are statistically significant. The *t* statistic for pair 1 (pre-test and immediate posttest) was -1.73 (*t* = -1.73), the *t* statistic for pair 2 (immediate Posttest and 30-day posttest) was 3.94 (*t* = 3.94) and the *t* statistic for pair 3 was -1.30 (*t* = -1.30). The *t* values are the ratios of the mean of the differences to the standard errors of the difference under the two different assumptions (Bruin, 2006).

The knowledge gained by participants can be disseminated to obese adolescent detainees at clinic visits. Reinforcing teaching at each visit could motivate adolescents to make healthy food choices and use their recreational time for exercise. There is a strong correlation between the rates of adolescent obesity and adult obesity; lower adult obesity rates are a key indicator of success in preventing adolescent obesity. According to Gates and Bradford (2015), education offered to adolescents on healthy habits provides them

with information that sufficiently equips them with the knowledge to live healthy lifestyles. An adolescent with a BMI of less than 25 are healthy and they rarely seek medical help (Bradford, 2015); with this healthcare providers in correctional facilities can use their time to manage problems that are more acute. The estimated medical costs for obese adults in 2012 were about 147 billion dollars, and the estimated medical costs for obese children and adolescents in 2013 were about 14.3 billion dollars **(**Levitt, Jackson, & Morrow, 2016). The above statistics imply that the prevention of obesity can bring positive change at the individual level, state level, and federal level.

Recommendations

In the United States, approximately one-third of children are either overweight or obese (CDC, 2017) Research conducted by Ward et al. (2019) showed that by 2030 nearly one of every two adults will be obese. Obesity affects not only the individual's quality of life but also the entire community at the state, national, and international levels. The toolkit created for this project could be used to establish a healthy food choices and exercises program (Appendix E) in any correctional facility. The project's goal-setting tip sheet could be used for all overweight or obese patients (Appendix F) in an outpatient clinic. The tip sheet for staff on when to refer obese patients to mental health services (Appendix G) could also be used in any outpatient clinic. Clinicians could use the toolkit as a guideline for obesity prevention in correctional institutions as well as in outpatient clinics. If clinicians use the toolkit at each visit, as recommenced, obesity could be prevented; the rate of obesity could decrease, and the practice gap in treating obese adolescent could be addressed

Strengths and Limitations of the Project

Strengths

There are multiples strengths in this project. The primary strength is that this project is based on current evidence-based literature. Another strength of this project is that the toolkit can be used in any correctional institution to educate obese adolescents and adults. A third strength of this project is that the toolkit can also be used in outpatient clinics to educate populations of all ages with obesity-related comorbidities, thereby improving the quality of care provided and producing better outcomes. In addition, the project contributed to the health of a specific population, thus satisfying the American Association of Colleges of Nursing essential V11 (AACN, 2006).

Limitations

One limitation of this project is the small number of participants. Only 20 participants completed the pretest and only 19 participants answered the immediate posttest and the 30-day posttest questions. In the future, to improve this type of education, it would be better to use multiple similar correctional facilities and increase the number of participants. Another limitation of this education was multiple complaints from participants about the scheduled times for in-service training. Participants scheduled to attend the in-service program in the morning were rushing to go home after a long night shift. Participants scheduled for noontime were complaining about their short lunch break, and those scheduled in the evening were rushing to go home. The reassessment was done 30 days post-test to evaluate the knowledge retained. A lapse of 30 days might not be long enough to conclude that knowledge was retained. A long-term project could

provide many in-service programs to evaluate whether repeating a similar in-service program on one topic results in improved long-term retention of the content presented. The short period in this project might not be enough time to follow up on this project.

Summary

This DNP project provided education to staff and expanded their knowledge to help facilitate better assessment, diagnosis, treatment, and prevention of obesity. This section reviewed the purpose of the project, the practice focus question, and the gap in practice. I also summarized the sources used to develop this project's program and the PowerPoint presentation used to educate staff. This section presented the project's findings and their implications in terms of individuals and at the community level, state level, and national level.

Section 5: Dissemination Plan

Analysis of Self

I realized that it was important to conduct a doctorate project to support obese adolescents in correctional facilities. I have achieved some practical insights into the current conditions of obese adolescent detainees. I am fortunate that the information from this project can be used in other juvenile facilities to decrease obesity rates in detained adolescents.

My Long-Term Goal and My Role as a Practitioner, Scholar, and Manager

According to the American Nurse Association (American Nurse Association, 2010), nursing is a life-long learning process, and nurses must improve their knowledge by engaging in learning activities to enhance the profession of nursing practice and to support their career goals. As a DNP graduate, my long-term goal will be to spread the findings of the education to as many people as possible to help obese adolescents and adults across the country. As a practitioner, I will continue to increase my knowledge of evidence-based practice, as this will boost the quality of care that I provide to my patients. During this doctorate course, I realized that clinical practice alone cannot help me to overcome the challenges and demands of the 21st century. Because of this, I must continue to learn throughout my nursing career to meet the rapid changes in the healthcare setting, and this will fulfill my role as a scholar. As a manager, I will apply evidence-based practice to concepts to improve some issue in the healthcare.

Project Experience and Completion

This project allowed me to meet healthcare professionals working in a correctional facility; I found that all services offered by outpatient clinics were also offered in correctional institution clinics. This experience erased the stigma that I associated with healthcare providers working in correctional institutions. By the end of this education, I had developed a good relationship with leaders, providers, and nurses working in the correctional facility. The checklist provided by Walden University provided a guideline to follow to ensure that this doctorate project meets the criteria for the education program. The information from the project may enable providers to educate obese adolescent detainees to help them manage their weight. Before doing this project on obese adolescents, I had not known that the rate of adolescent obesity was so high. My Doctorate in Nursing Practice prepared me for the role of change agent in the nursing field.

Challenges

The most significant challenge for the DNP project was the manipulation of the DNP project template and the inaccurate use of the checklist for the project. In addition, I faced some challenges in finding enough resources to support obese adolescents in the correctional institution., to overcome this challenge, I attend the intensive lab class. The class was scheduled for only five days, but it was worthwhile because I learned a great deal in that short period of time, and I was able to navigate quickly and move forward with my project.

Summary

This section gave me the opportunity to develop a plan to disseminate this work in correctional institutions and in the nursing profession. As a nurse leader, I will advocate for preventing adolescent obesity, and I will continue to increase my knowledge of evidence-based practice, as this will boost the quality of care that I provide to my patients. During this doctorate course, I realized that I must keep up with the literature and evidence-based practice to overcome the challenges and demands of the 21st century. This implied that I will continue to learn to meet the standard demanded in the nursing field. Another subject discussed in this section was the analysis of self and my role as a practitioner, a scholar, and a manager. I developed long-term goals. I also described the project and how it was completed. Lastly, I explained the challenges I faced during the journey and the insights I gained.

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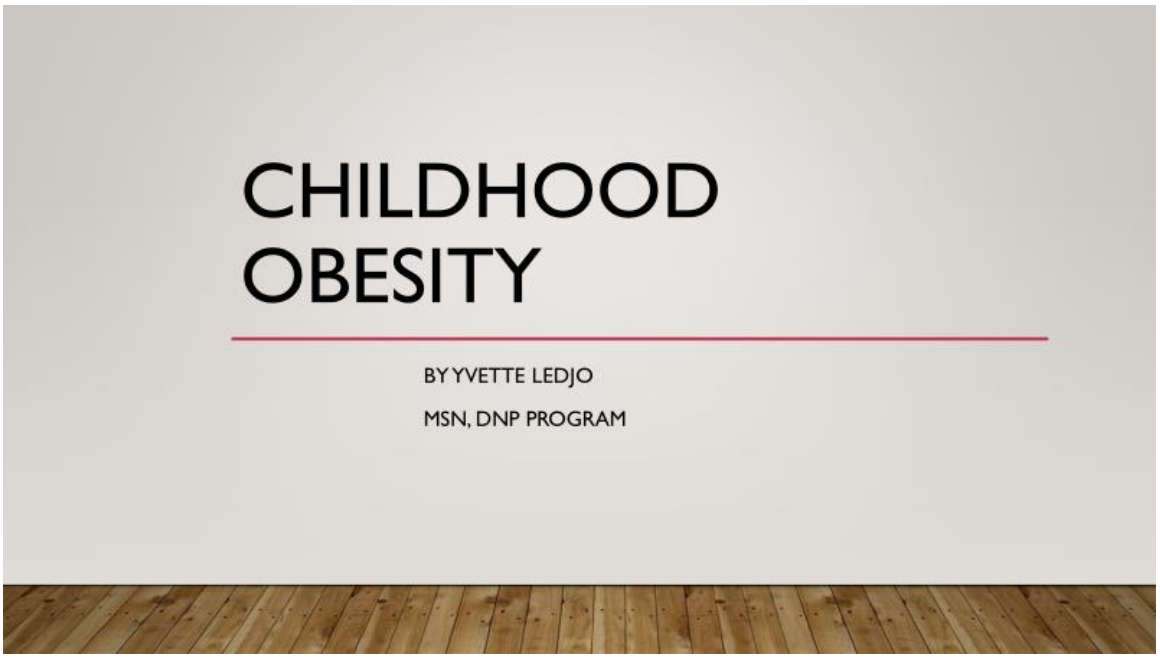
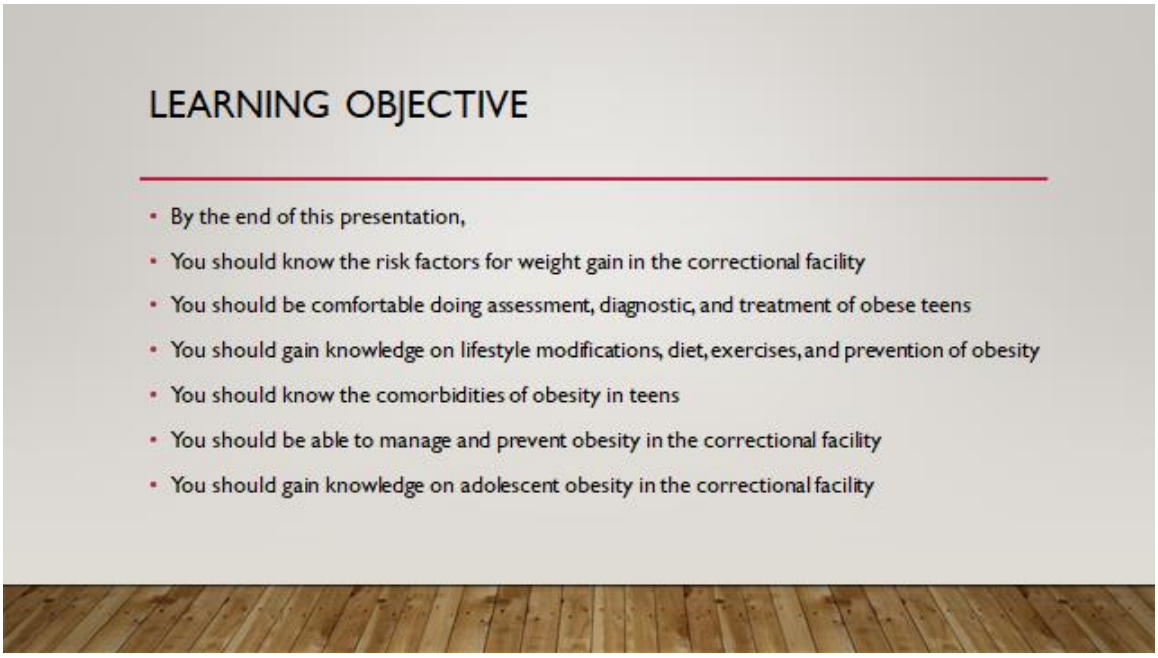
Appendix A: PowerPoint Presentation





MULTIDISCIPLINARY TEAM

- Doctors
- Nurse Practitioners (NP)
- Physician Assistants
- Dietitians
- Pharmacists
- Psychiatrist
- Nurses
- Nurse assistants

WHAT INFORMATION SHOULD BE COLLETED

- Blood pressure of adolescents calibrated in mmHg
- Height of the adolescents calculated in meters
- Weight of adolescents measured in kilograms
- Waist circumference of adolescents measured in centimeters
- Hip circumference of adolescents measured in centimeters
- Waist to hip ratio of adolescents
- Sources from the Center for Disease Control and Prevention (CDC, 2017).

CLASSIFICATION OF THE BODY MASS INDEX (BMI)

- If the BMI is less than 18.5, it is considered underweight
- If the BMI is between 18.5-24.5 it is considered normal weight
- If the BMI is between 25-29.5 is it considered overweight range
- If the BMI > 30 it is considered obese range
- Obesity is divided into 3 categories
- Class I BMI of 30 <35
- Class II BMI of 35 to <40
- Class III BMI of 40 or higher
- Source from the CDC (2017)

BEHAVIORAL ASSESSMENT

- Assessment for the readiness of weight loss
- The motivation on weight loss
- Assessment for stress level and mood level
- Assessment for eating disorder in addition to obesity
- Assessment for the readiness for physical exercise
- Source from the American Academy of Family Physician (AAFP, 2013)

RISK FACTORS OF OBESITY IN INCARCERATION INSTITUTIONS

- Rapid weight gain when adolescent enter in the correctional institutions
- Limited exercises due to the security issues
- Lack of the healthy food choices
- The use of some types of medication especially the psychotropic drugs
- The lack of money to buy healthy food (fruits and vegetables) in the commissary
- Lack of preventive care when detainees seek medical help in the correctional institutions.
- Source from Johnson et al. (2018).

DIAGNOSIS OF OBESITY

- The Body Mass Index (BMI) is the tool to measure obesity in teen and adults.
- Waist circumference greater than 40 in man about 102 cm
- Waist circumference greater than 35 in women about 88cm
- Metabolic syndrome (people with comorbidities such as elevated blood pressure, blood glucose, waist circumference, and cholesterol).
- Test for cholesterol, blood glucose, vitamin D deficiency, and hormone imbalance
- Source from American Academy of Family Physician (AAFP, 2013).

TREATMENT AND MANAGEMENT OF OBESITY

- Change the eating habits
- Reduce the portion size from 500 to 1000 calories a day
- Keep the goal for weight loss for up to 2 pounds a week
- Eat slowly that will help with the satisfaction
- Reduce alcohol consumption that is high in calories
- Drink at least eight glasses of water a day
- Increase the protein consumption to fell full)
- Increase fruits, vegetables, and whole gran that are source of vitamins and8 minerals
- Sources from the Center for Disease Control and Prevention (DCD, 2018), American Diabetic Association (ADA 2012), Food Guide Pyramid (2015).

PREVENTION OF OBESITY

- Keep healthy food choices
- Encourage physical activity to 60 minutes a day
- Avoid sedentary life, limitation of the screen time (computer and television) to 2 hours a day
- Five servings of fruits and vegetables each day
- Get enough sleep about 8 hours every night.
- Avoid stress
- Limit sweetened beverage
- Source from the American Academy of Family Physician (AAFP, 2013)

LIFESTYLE MODIFICATION

- Change the eating habits
- Increase the protein consumption to fell full
- Read food labels
- Avoid eating late at night
- Drink at least 2.5 liters of water a day
- Exercise at least 60 minutes and at least 5 days a week
- Source of the American Academy of Family Physician 2013

STATISTICS

- juvenile detainees have the following comorbidity statistics
- 13.7 million of children and adolescents were obese in 2018
- 13.8% of them have hypertension
- 6.1% of total detainees have heart problems
- 4% have diabetes
- Source for the Center for Disease Control and Prevention (2018)

WHAT HAVE YOU LEARNED?

- Any questions?

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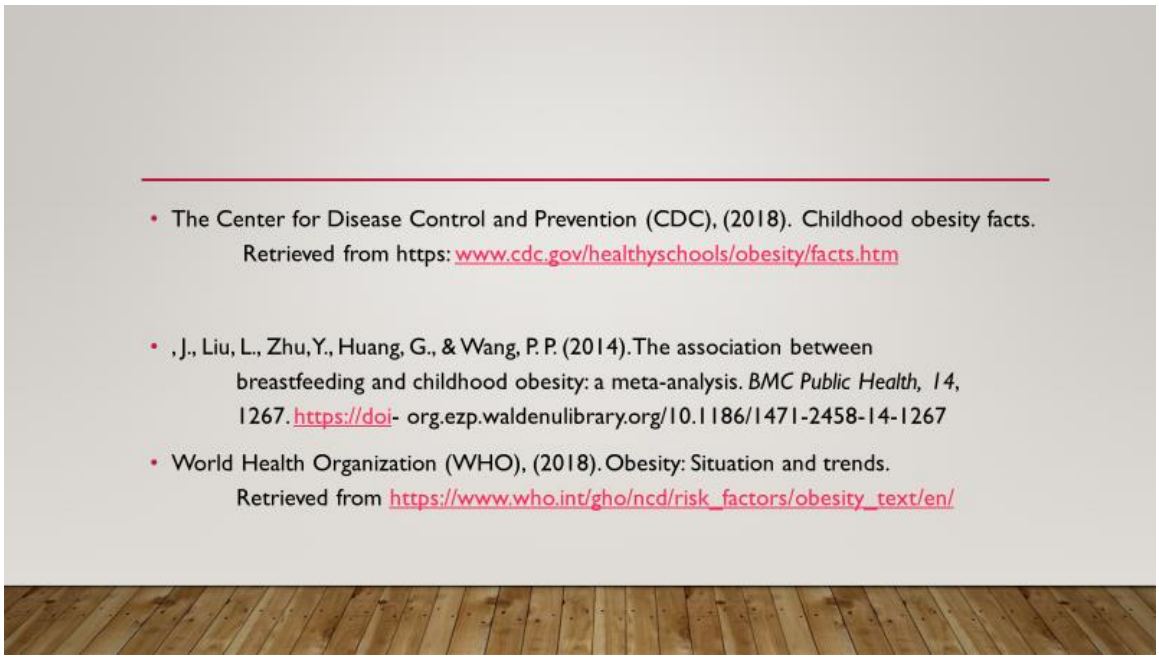

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Appendix B: Sample Pretest Questionnaire

1- What is your knowledge about childhood obesity?

A- Little idea

B- Some knowledge

C- Well informed

D- None of the above

2- Are you confident discussing weight issues with detainees?

A- Yes

B- No

3- What do you consider obesity in adolescent detainees?

A- When the BMI is > 18.5

B- When the BMI is < 18.5

C- When the BMI is = 18.5

D- None of the above

4- What do you consider overweight in adolescent detainees?

A-When the BMI is > 18.5

B- When the BMI is > 18.5

A- When the BMI is = 18.5

B- None of the above

5- Are you comfortable discussing weight with obese detainees?

A- Yes

B- No

6- Which diagnostic criterion is considered standard for adolescents?

A -BMI

B- The waist and hip circumference

C- B only

D- None of the above

7- What is the main reason for obesity in adolescent detainees?

A- Genetics

B- Noncompliance on healthy food choices

C- A and B

D- None of the above

8- What must be considered when diagnosing obesity in adolescents?

A- Percentiles

B- BMI

C- A and B

D- None of the above

9- Which disease is associated with obesity?

A- Cardiovascular disease

B- Diabetes

C- A and b

D- None of the above

10- What is the best snack for children?

A- Fast food

B- Pizza

C- One or two servings of fruit

D- Snacks are not good for children

11- How can childhood obesity be prevented?

A- Healthy food choices

B- Frequent snacks

C- Early diet and exercise

D- No prevention is needed

12- Do environmental factors affect childhood obesity?

A- Yes

B- No

13- Can sedentary life contribute to obesity?

A- Yes

B- No

14- **Can adolescents take pills for weight loss?**

A- Yes

B- No

Note: Information obtained from CDC (2018) and American Association of Family Physicians (AAFP, 2013).

Appendix C: Sample Posttest/30 Day Posteducation Questionnaire

1- What is your knowledge about childhood obesity?

A- Little idea

B- Some knowledge

C- Well informed

D- None of the above

2- Are you confident discussing weight issues with detainees?

A- Yes

B- No

3- What do you consider obesity in adolescent detainees?

A- When the BMI is > 18.5

B- When the BMI is < 18.5

C- When the BMI is = 18.5

D- None of the above

4- What do you consider overweight in adolescent detainees?

A-When the BMI is > 18.5

B- When the BMI is > 18.5

C- When the BMI is = 18.5

D- None of the above

5- Are you comfortable discussing weight with obese detainees?

A- Yes

B- No

6- Which diagnostic criterion is considered standard for adolescents?

A -BMI

B- The waist and hip circumference

C- B Only

D- None of the above

7- What is the main reason for obesity in adolescent detainees?

A- Genetics

B- Noncompliance on healthy food choices

C- A and B

D- None of the above

8- What must be considered when diagnosing obesity in adolescents?

A- Percentiles

B- BMI

C- A and B

D- None of the above

9- Which disease is associated with obesity?

A- Cardiovascular disease

B- Diabetes

C- A and B

D- None of the above

10- What is the best snack for children?

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11- How can childhood obesity be prevented?

A- Healthy food choices

B- Frequent snacks

C- Early diet and exercise

D- No prevention is needed

12- Do environmental factors affect childhood obesity?

A- Yes

B- No

13- Can sedentary life contribute to obesity?

A- Yes

B- No

14- **Can adolescents take pills for weight loss?**

A- Yes

B- No

Note: Information obtained from CDC (2018) and American Association of Family Physicians (AAFP, 2013).

Appendix D: Assessment Tool

Assessment tool to identify problems with screening assessment

- Measure adolescent's height and weight and calculate the BMI.
  - If BMI is between 18.5 and 24.9, provide health promotion and follow up in the next visit.
  - If BMI is between 25 and 29.9, adolescent will need more assessment.
  - If BMI is above 30, adolescent will move to the third level of assessment.

- Risk factors related to obesity
  - Family history of cardiovascular disease, diabetes, or obesity
  - Monitor for elevated cholesterol, blood pressure, and diabetes
  - Monitor for psychological issues
  - Monitor for sleep apnea
  - Monitor the acanthosis nigricans
- If the risk factors are negative, provide health promotion and follow up in the next visit.
- If the risk factors are positive, move to the third level of assessment.

- Third level of assessment
  - Perform the comprehensive physical assessment
  - Ask for family history of chronic diseases
  - Ask for social history and religious affiliation
  - Ask the frequency of physical activities

- Ask for socioeconomic status
- Ask for current medications
- Review current laboratory results

Note: Information obtained from Centers of Disease Control (2018) and Freeman et al. (2018).

Appendix E: Risk Factors

Risk factors for identifying problems

- Body mass index
- Age in years
- Gender (male or female)
- Blood pressure in mmHg
- Height in meters
- Weight in kilograms
- Waist circumference in centimeters
- Hip circumference in centimeters
- Waist-to-hip ratio

Note: Information obtained from American Association of Family Physicians (AAFP, 2013).

Appendix F: A Goal-Setting Sheet for Staff to Use with Overweight or Obese Detainees

A goal-setting sheet for staff to use with overweight or obese detainees

1- I gave you a brochure at the last visit. Do you want another one?

2- What did you eat yesterday?

3- Did you weigh yourself today? If offender response is yes, the next question is: Are you happy with your weight?

4- Tell me about your weight compare to the last visit.

5- Have you been exercising?

6- Have you been eating healthy foods?

Appendix G: A Tip Sheet for Staff Referral to Mental Health Services

A tip sheet for staff on when to refer to mental health services

- Inability to cope with sudden physical activity
- Feeling tired everyday
- Low self-esteem/confidence
- Feeling isolated
- Mood disturbances

Note: Information obtained from CDC (2018), English (2013), and Cheung and Hu (2019).

Appendix H: A Teaching Brochure

Food choices, behavioral change, and exercise program

This is the teaching brochure that will be distributed to obese offenders at the visit.

1- Get ready for the change.

2- Sleep at least 8 hours every day.

3- Keep your motivation up, and that will help you surpass the challenging steps.

4- Eat breakfast every morning to jumpstart your day and boost your metabolism.

5- Read food labels, and that will help you to make better food choices.

6- Consume more fruits and vegetables on a daily basis.

7- Cut back your food portions.

8- Avoid eating late at night.

9- Increase your physical activity to at least 60 minutes a day.

10- Decrease your sedentary behavior to 2 hours a day (television watching, video games, and computer use).

11- Avoid frequent snacking (especially on foods high in fat, sugar, and salt).

12- Eat the following grains products: whole wheat tortillas, high-fiber dry cereal, whole-grain crackers, rice cakes, graham crackers, low-fat popcorn, pretzels, granola bars.

13- Eat the following dairy products – low-fat cheese slices, string cheese, low-fat yogurt, low-fat milk, low-fat cottage cheese.

14- Eat protein-rich foods such as boiled egg slices, peanut butter, bean dip, lean turkey or chicken slices, or unsalted nuts.

Note: Information obtained from CDC (2017), American Heart Association (AHA) (2013 b), and National Heart, Lung and Blood Institute guidelines (2018).

Appendix I : Answer Key

Answer Key

1- C

2- A

3- D

4- D

5- A

6- A

7- C

8- C

9- C

10- C

11- C

12- A

13- A

14- B

Appendix J: Figures

Figure J1

Bar Chart 30 days Posttest (VAR00003)

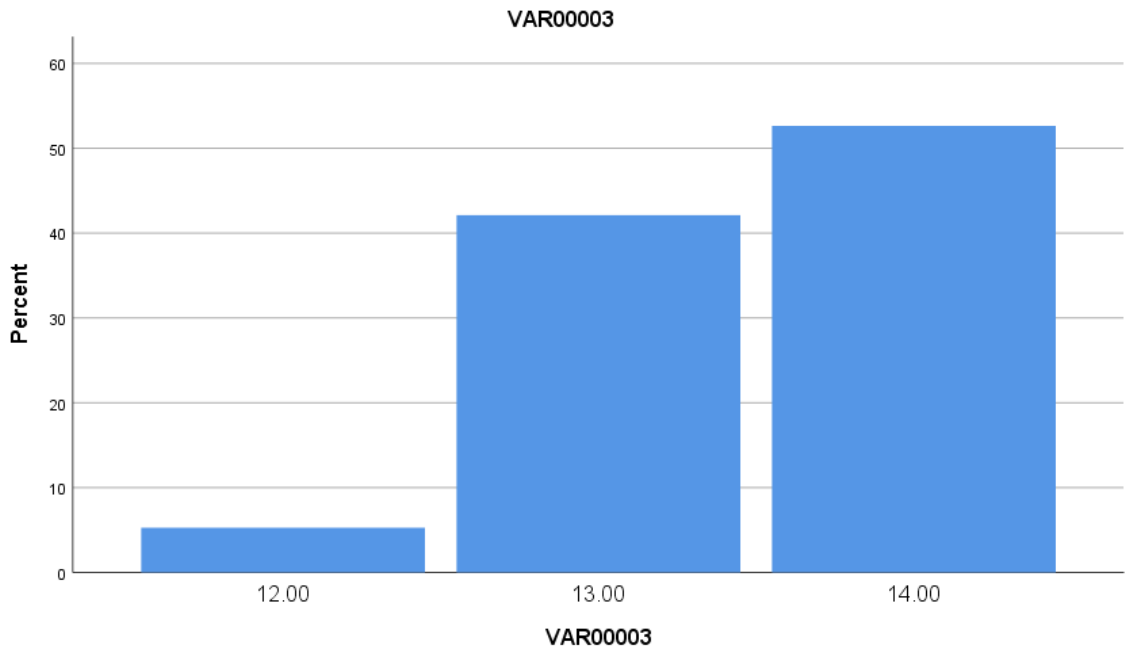

Figure J2

Histogram 30 days Posttest (VR00003)

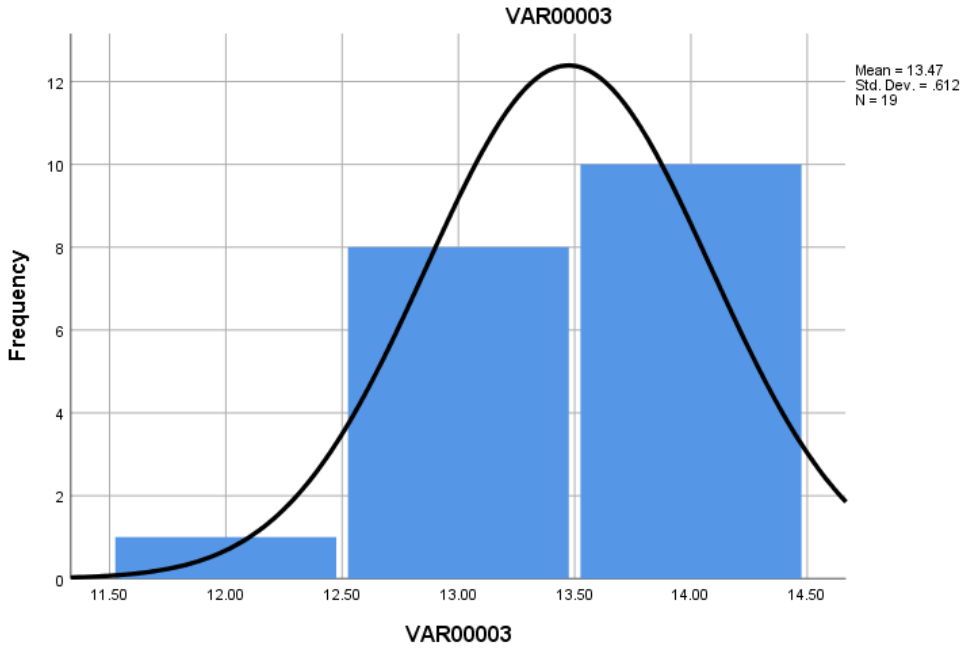

Figure J3

Pie Chart Posttest (VR00003)